

ABSTRACT OF THE DISCLOSURE

A compensated ensemble crystal oscillator clock system for use in a well borehole system. The clock system includes preferably four quad compensated clocks, a 5 compensated temperature sensor, and software for processing and correcting system response. Physical fabrication of elements of the quad compensated clocks, the compensated temperature sensor and cooperating software minimized drift in frequency of the oscillator clock system in harsh borehole environments encountered while drilling a borehole. The clock system exhibits a frequency stability of 2.8×10^{-9} or less over a 10 temperature range of from 0°C to 185°C. The compensated ensemble crystal oscillator clock system is particularly applicable to seismic-while-drilling operations wherein precise downhole measurements of time are required typically over a period of days.